WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:

decision means for deciding a similarity between a first pixel and a second pixel which constitute an image, by testing; and

average means for subjecting the first pixel and the second pixel to weighted averaging on the basis of a decided result by the decision means.

2. An image processing apparatus comprising:

numerical means for numerically giving a weight which is determined by a similarity between a first pixel and a second pixel constituting an image; and

average means for subjecting values of the first pixel and the second pixel to weighted averaging by using the weight numerically given.

3. An image processing apparatus as defined in claim 1 or 2, wherein the average means obtains a new pixel value concerning the first pixel, as a weighted average.

4. An image processing apparatus as defined in claim 1, wherein the average means includes determination means for determining the weighting factor on the basis of the decided result, and multiplication means for multiplying values of the first pixel and the second pixel by the weighting factor.

5. An image processing apparatus as defined in

any of claims 1, 2, 3 and 4, wherein:

the average means multiplies the second pixel value by a large weighting factor by the multiplication means when the similarity between the first pixel and the second pixel is high, and multiplies the second pixel value by a small weighting factor when the similarity is low; and

that it subjects the weighted first pixel value and second pixel value to the weighted averaging.

6. An image processing apparatus as defined in claim 1, wherein the decision means decides the similarity between the first pixel and the second pixel on the basis of a plurality of images obtained in such a way that an identical subject is photographed at different times by employing an imaging equipment.

7. An image processing apparatus as defined in claim 1 or 6, wherein the decision means decides the similarity between the first pixel and the second pixel on the basis of a plurality of images obtained in such a way that an identical subject is photographed at different photographing conditions by employing an imaging equipment.

8. An image processing apparatus as defined in any of claims 1, 6 and 7, wherein the decision means decides the similarity between the first pixel and the second pixel on the basis of a plurality of images obtained by photographing an identical subject with an

imaging equipment, and under different processing conditions.

9. An image processing apparatus as defined in claim 1, wherein the decision means decides the similarity between the first pixel and the second pixel by using a result of a comparison which is made between a vector value constructed by arraying scalar values of the first pixel in a single image obtained by photographing a subject with an imaging equipment, and a vector value constructed by arraying scalar values of the second pixel.

10. An image processing apparatus as defined in any of claims 1, 6, 7 and 8, wherein, using a result of a comparison which is made between a first vector constructed by arraying corresponding pixel values of the plurality of images in coordinates of the first pixel, and a second vector constructed by arraying corresponding pixel values of the plurality of images in coordinates of the second pixel, the decision means decides the similarity between the first pixel and the second pixel in a predetermined one of the plurality of images.

11. An image processing apparatus as defined in claim 1 or 2, further comprising image average means for averaging a first image obtained by subjecting the image to averaging processing with the average means, and a second image obtained by subjecting the image to

processing different from the averaging processing.

12. An image processing apparatus as defined in claim 1 or 2, further comprising image average means for averaging a first image subjected to averaging processing by the average means, and a second image before subjecting the first image to the averaging processing.

13. An image processing apparatus comprising:

determination means for determining and numerically giving a similarity between a first pixel and a second pixel which constitute an image, by statistical testing; and

average means for subjecting values of the first pixel and the second pixel to weighted averaging on the basis of the numerical value.

14. An image processing apparatus comprising:

numerical means for numerically giving a similarity between a first pixel and a second pixel which constitute an image, by statistical testing; and

average means for averaging values of the first pixel and the second pixel when the numerical similarity is high in the numerical means, and for not averaging the first pixel value and the second pixel value when the determined similarity is low.

15. An image processing method wherein:

vector values each of which is constructed by arraying scalar values are calculated as to first and

second pixels which constitute an image; and

that, in quantifying a similarity between a value of the first pixel and a value of the second pixel constructed separately from the first pixel value and then constructing a new pixel value for the first pixel by utilizing the second pixel value, the new pixel value is constructed by making contribution of the second pixel large when the similarity is high, and by making contribution of the second pixel small when the similarity is low.

16. An image processing method wherein:

a first pixel value and a second pixel value each of which is a vector value constructed by arraying scalar values are constructed as to a first pixel and a second pixel which constitute an image;

that a similarity between the first pixel value and the second pixel value is quantified; and

that, in constructing a new pixel value for the first pixel by utilizing the second pixel value,

the new pixel value is constructed by making contribution of the second pixel large when the similarity is high, and by making contribution of the second pixel small when the similarity is low.

17. An image processing method wherein:

a first pixel value and a second pixel value each of which is a vector value constructed by arraying scalar values are constructed as to a first pixel and a

second pixel which constitute an image;

that a similarity between the first pixel value and the second pixel value is quantified; and

that, in constructing a new pixel value for the first pixel, by exerting a weight function which is a function of the similarity, on the similarities calculated for the individual second pixel values, thereby to determine weights of the individual other pixel values, and by subsequently calculating a weighted average of the other pixel values on the basis of the weights,

the new pixel value is constructed by making the weight large so as to make contribution of the other pixel large in the weighted average, when the similarity is high, and by making the weight small so as to make contribution of the other pixel small in the weighted average, when the similarity is low.

18. An image processing method as defined in claim 17, wherein the weight function is a non-negative monotonously increasing function which concerns the similarity.

19. An image processing method as defined in claim 17, wherein:

when the first pixel and the second pixel are respectively denoted by x and y, the first pixel value and the second pixel value are respectively denoted by $v(x) = (v_1(x), v_2(x), \cdots, v_K(x))$ and $v(y) = (v_1(y),$

$v_2(y)$, $\cdots$, $v_K(y)$), and the new pixel value to be constructed is denoted by $v'(x) = (v'_1(x), v'_2(x), \cdots, v'_K(x))$, and when $\rho(x, y)$ denotes the similarity, w denotes the weight function, and $w(\rho(x, y))$ denotes the weight obtained by exerting the weight function w on the similarity, processing for taking the weighted average is expressed by:

$$v'_k(\mathbf{x}) = \frac{\sum_{y \in N(x)} v_k(y) w(\rho(x, y))}{\sum_{y \in N(x)} w(\rho(x, y))}$$

(where $N(x)$ denotes a range in which the other pixel is included).

20. An image processing method as defined in any of claims 15 through 17, wherein noises of the image are suppressed by constructing the new pixel value.

21. An image processing method as defined in any of claims 15 through 17, wherein pattern recognition in the image is performed by constructing the new pixel value.

22. An image processing method as defined in any of claims 15 through 17, wherein the similarity is quantified on the basis of a critical probability which is obtained by applying a statistical testing method to scalar values respectively constituting the first pixel value and the second pixel value.

23. An image processing method as defined in claim 16 or 17, wherein the second pixel is selected

from within a predetermined region around the first pixel.

24. An image processing method as defined in claim 23, wherein the predetermined region is a rectangular area which centers around the first pixel.

25. An image processing method as defined in claim 16 or 17, wherein the image consists of a plurality of images, and that the pixel values are vector values which are obtained by arraying scalar values of pixels of the same points throughout the plurality of images.

26. An image processing method as defined in claim 25, wherein the plurality of images are a plurality of static images which constitute a dynamic image.

27. An image processing method as defined in claim 26, wherein the dynamic image is a dynamic CT image which is acquired by a medical image diagnostic equipment.

28. An image processing method as defined in claim 16 or 17, wherein the image is a plurality of sorts of images concerning an identical subject, and that the pixel values are vector values which are obtained by arraying scalar values of pixels of the same points throughout the plurality of sorts of images.

29. An image processing method as defined in

claim 28, wherein the image is an image which is acquired by multiwindow radiography in a SPECT equipment or PET equipment, and that the plurality of sorts of images are respectively different images which are based on gamma rays respectively emitted from different radioisotopes.

30. An image processing method as defined in claim 28, wherein the image is a color image, and that the plurality of sorts of images are respectively different images which are acquired by decomposing light into three primary colors.

31. An image processing method as defined in any of claims 15 through 17, wherein the image is a single image, and that the pixel values are constructed from the single image.

32. An image processing method as defined in claim 31, wherein the pixel values are vector values which are obtained by arraying a scalar value of a certain pixel on the single image and scalar values of pixels lying in the vicinity of the certain pixel.